



# POLLI:NATION

# Maintenance booklet





# About this guide

This guide aims to help both schools and grounds staff manage school grounds for the benefit of children and pollinating insects

## Polli:Nation

Pollinating insects are homeless and hungry and they need our help. They are vital for our food security and the health of the planet. As one 11 year old has said “If bees died, we’d die... so why don’t we just help bees to not die?”

Studies in Europe have shown a decrease of as much as 76% in insects and the knock-on effect could be equally devastating to other wildlife populations.

Polli:Nation is a project to make school grounds more pollinator-friendly. Find out more by visiting [www.ltl.org.uk/projects/pollination](http://www.ltl.org.uk/projects/pollination).

## Introduction

This guide aims to help both schools and grounds staff manage school grounds for the benefit of children and pollinating insects.

Daily contact with nature has been shown to be beneficial to the mental, emotional and physical

health of children as well being an excellent educational resource.

Grounds that are full of pollinating insects will also help encourage a wider variety of wildlife to visit.

## What will we need to change?

Managing school grounds for wildlife means thinking about them in a different way. For many schools, the way their grounds are managed was probably decided some time ago and may never have been reviewed.

Maintenance will probably focus on mowing the sports field, marking out sports pitches and keeping the grounds looking neat and tidy; but this approach limits not only the variety of wildlife likely to visit or live in the grounds but also how it can be used by the pupils.

Start by finding out what is being paid for now. You may find that things have changed since the contract or work programme was written and some things aren’t



actually being done or aren’t necessary.

Then consider what you want to achieve - this will include how the school want to use the grounds for play and for learning as well as for wildlife, including pollinating insects.

At this point the school and grounds staff should work together to consider how the maintenance of the grounds can help encourage more pollinating insects before you make changes to how you currently manage the grounds.

A change of attitude is the best starting point – immaculately tended grounds are unlikely to be the best for wildlife, or pupils, so let nature creep into the nooks and crannies and don’t try to remove every weed you see.

After all a weed is just 'a plant in the wrong place' and surely school grounds are the right place for wildlife to thrive!

Sometimes you may feel you want a tidier entrance to the school, although you may also decide you want to show from the start that your school is wildlife-friendly.

If you want a neat entrance to your school consider a gradual transition

from the front to more wildlife-friendly maintenance away from these areas.

## The use of pesticides

This should be done once other options have been trialled and failed as considerable research now shows neonicotinoids have an impact on bee populations. Other sprays may affect human health. However, not using pesticides will also have an impact on maintenance in the school grounds, so check which are being used and if they should be changed.

Pesticides are used because they are often a cheap, quick and effective solution with low levels of manpower. Organic alternatives and manual solutions may take more time but can be healthier for humans and insects alike. So, if you have a tricky weed problem that really does need to be addressed, look at alternative ways of tackling it from mulches and mats to volunteer days and manually removing them.



## How to use this guide

We hope you will find this guide helps you understand why you are managing your school grounds in different ways – why do we only cut this area of grass once a year or why is it OK to not weed under this hedge? Understanding this from the school's side and from the ground staff side will help you get the most out of the incredible resource of your school grounds.

The guide:

- specifically targets maintenance for pollinating insects, not the creation of habitats
- is divided up under different types of habitat
- is designed for both school staff and grounds staff
- can only provide you with an idea to when operations need to be carried out so your own experience of local conditions will also need to be considered
- is an accompanying document for training for grounds maintenance staff on maintaining school grounds for wildlife by Learning through Landscapes. For more details visit [www.ltl.org.uk](http://www.ltl.org.uk) or email [enquiries@ltl.org.uk](mailto:enquiries@ltl.org.uk).



# Flower beds, pots and planters

## including fruit and vegetables

**Flower beds and fruit gardens can provide nectar sources for a range of pollinators along with overwintering, nesting or shelter sites**



Try to use a range of plants that provide nectar in all the seasons. Be aware of when they flower, so you do not prune at a point that stops the plant from providing nectar.

With vegetables it is OK to let some plants go to flower, so don't be too quick to clear the beds. Don't forget the larval stages of many pollinators need to eat plants or

bury themselves in the ground, it is not just the flowers that pollinators need. Remember to plant two for yourself and one for the wildlife.

Although dates are given in the table always consider the weather each year and your location in the country as this will have an impact on the exact time of year different activities and operations will take place.

When	Management	Why	Who
September to December	<p>Autumn harvesting e.g. broccoli, celery, leeks, sweetcorn, fruit</p> <p>Clear the green house or poly tunnel and wash down ready for the spring</p> <p>Dig up and replant self-seeded plants such as forget me not, foxgloves etc</p> <p>Collect seeds</p> <p>Tie up any climbers</p> <p>Clear dead annuals (leaving late flowers and seed heads)</p> <p>Plant new bulbs and replace old ones where necessary, prepare spring flowering pots</p> <p>Rake up the leaves to create leaf mulch</p>	<p>Harvesting ripe fruit and vegetables. Windfall fruit will attract some insects, but these will include wasps, so they should be collected in. They can still be used for juicing.</p> <p>To reduce the amount of plants you have to buy from unknown sources and reduce pest issues</p> <p>To extend the flowering season with spring bulbs</p> <p>To create a nesting habitat and reduce watering and weeding</p>	School – pupils with support from staff

When	Management	Why	Who
November to February	Tidy herbaceous borders Prune currant and gooseberry bushes	To maintain healthy plants and bountiful crops for the following season	School – pupils with support from staff
January to February	Clearance of growing beds – remember to compost what you remove Turn older compost piles Cut back the ivy before the birds pair up for nesting Allow your chickens to grub out your veg beds and fertilise them	To ensure growing area remains healthy and not overgrown	Pupils with the support of staff OR ground staff – as an additional resource, to be used only when required
March to April	Preparation of growing areas – Inspect your beds for any repairs Top up your beds as necessary using compost Cover the soil in mulch Where smaller pots are being used re-pot Prepare potato sacks or veg beds for sowing	To make sure you have the best possible start to your growing season  Mulch will suppress weed growth	School – pupils with help from staff and or parents or other volunteers
March to April	Sowing seeds indoors e.g. summer cabbage, peppers, tomatoes Move the young plants from the greenhouse to the cold frame to harden off	Choosing plants that are pollinated by insects (such as potatoes and tomatoes) will extend the flowering season	School – pupils with help from staff and/or parents or other volunteers
May to July	Sowing and planting outside e.g. carrots, onions, peas, turnips Prepare summer pots Don't over-weed but allow plants to grow Take softwood cuttings Deadhead and tidy spring flowering plants	To ensure long flowering season  Allowing some 'weeds' will provide more flowers throughout the year  To be able to replace herbaceous plants  To create space for summer nectar	School – pupils with support from staff
June to August	Harvest summer crops e.g. runner beans, blackcurrants, gooseberries, courgettes Deadhead and tidy early flowering plants Take softwood cuttings	To encourage all to do it again!	School – set up an irrigation system or a rota for regular watering when the weather is dry
All year	Maintain a compost pile or bin by adding a balance of green waste (leaves, grass – but not too much), brown waste (sticks, shredded paper and other drier materials) and moisture Regularly turn your compost to maintain a good air flow	To enable the school to grow organically thus reducing risks to insects	School and ground staff can both contribute to developing the compost heap

# Grass, meadows and bare ground

Letting areas of grass (big or small) grow longer increases the range of opportunities for pollinators

Grass habitats come in three different types: acid, neutral or calcareous. This affects the plants that grow there.

The plant growth and management is also affected by the aspect, drainage and the gradient of the grassland.

Most school grounds have improved amenity grassland that has been impacted by nitrogen or reseeding. Unimproved grassland tends to be more diverse and is better for pollinators so if you think you are

lucky to have a species rich meadow do let your local conservation organisations know.

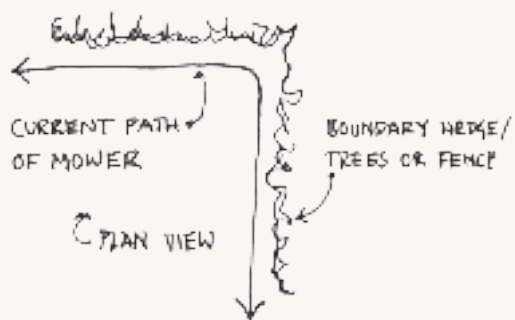
Although you may see more pollinators in sunny sites, often shady sites are equally valuable as they stay damp and create nesting sites for some of the burrowing pollinators.

Finally, worn patches of bare ground on sunny slopes and play areas are great for many solitary bees: look out for small holes and don't re-seed everything.



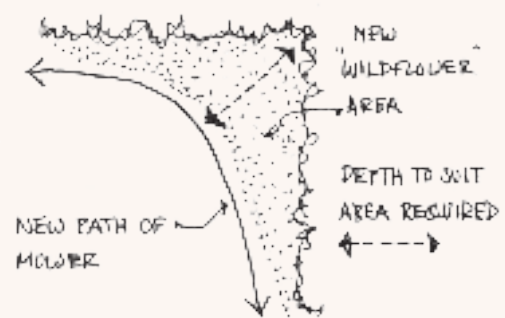
When	Management	Why	Who
April to September	Allow areas of grass to grow long. This could be in large or small areas	This creates habitats for some pollinating insects. In some areas this will allow a greater variety of wildflowers to grow. It also provides a great space for children to play in	Ground staff
March to June	Check spring bulbs to see if there is a requirement for new planting  Allow for die back before any plant material is removed  For bulbs, such as daffodils, naturalised in grass this is likely to be approximately six weeks after flowering has finished	Having bulbs increases the flowering period and variety of plants for pollinating insects to feed on  Allowing the leaves to die back will ensure that the energy from the leaves feeds back into the plant for successful growth in subsequent years	School – pupils and staff can check bulbs and replace as required Ground staff should cut the bulbs back when the leaves have died back
Mid July - September	Cut hay once annually	Cutting before mid-July would prevent many important wildflowers from flowering and setting seed	Ground staff
One to two weeks later	Remove hay after it has had time to dry and drop seeds	Encourages seed to drop which promotes regeneration of the seedbank. Remove the cuttings to lower the fertility of the soil, preventing weeds and coarse grasses from taking over	Ground staff
Throughout the year	Some patches of bare ground should be allowed to remain and not immediately sown with grass seed	Some solitary bees make their home in bare ground, such as bee banks. Allowing some patches of bare ground means that they will be able to thrive	Ground staff and the whole school

### A) TYPICAL MOWING REGIME



• SHORT REGULARLY CUT GRASS RIGHT UP TO EDGE/ BOUNDARY.

### B) REVISED MOWING REGIME



- SHORT REGULARLY CUT GRASS.
- GIVES NEAT EDGE TO LONG GRASS.
- MARGIN LEFT UNTOUCHED TO GROW, FLOWER & SET SEED.
- NO CUTTING BETWEEN APRIL & SEPTEMBER.



# Trees, hedges and shrubs

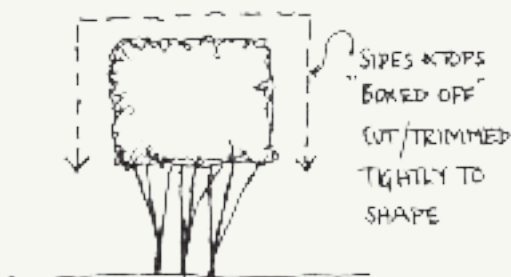
Woody plants provide nectar and larval food sources for a huge range of pollinators, as well as functioning as support for climbing plants and as wind breaks

Aim for a mix of evergreen and deciduous plants to provide shelter and nectar sources in every season.

Woodlands have a wide diversity of pollinators. In particular the edges (both within woodland glades or rides and on the outside of the wood) are often where some of our most beautiful butterflies are found feeding, marking territories and nesting and sheltering.



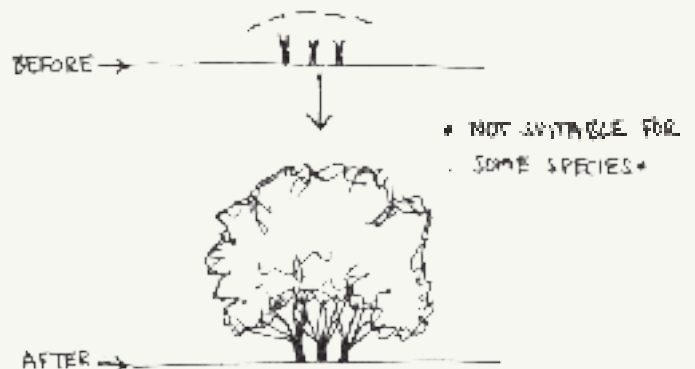
## A TYPICAL SHRUB BED MAINTENANCE



- BARE EARTH UNDERNEATH.
- OVERGROWN & 'LEGGY' STEMS.
- FLOWERS OFTEN TRIMMED OFF.
- HERBICIDE STRIP EITHER SIDE UP TO STEMS.

## B REVISED SHRUB BED MAINTENANCE

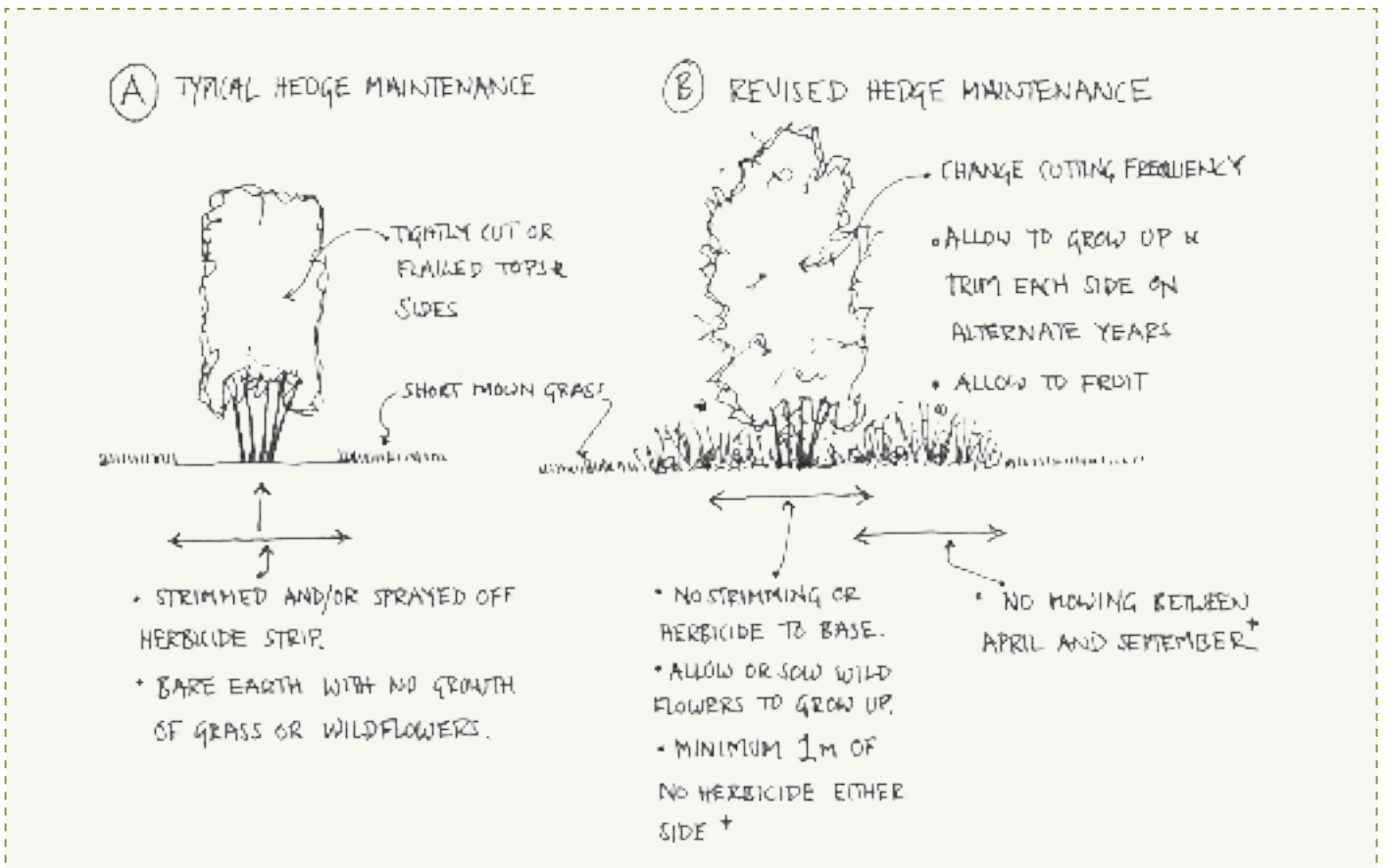
- COPICE OR CUT HARD BACK TO 3/4" OF GROUND LEVEL
- RESTARTS GROWTH CYCLE
- MULCH BASES WITH BARK/WOOD CHIP



CREATES DENSE BUSHY SHRUBS WHICH CAN BE LEFT TO GROW & FLOWER FOR 3/5 YEARS WITH NO PRUNING OR TRIMMING.



When	Management	Why	Who
Throughout the year	<p>For the first three years of growth make sure newly planted trees have a 1m weed-free zone around their base. This should be done using a mulch or mulch mat not herbicide or strimmer</p> <p>Tree ties should be checked to ensure they are not too tight and removed when the tree is sturdy enough to grow without additional support</p> <p>Trees should be regularly checked for damaged branches or disease</p>	<p>Using pesticides can impact on the pollinating insects in your grounds so better to avoid their use, whilst strimmers can damage the trees you are trying to grow</p> <p>Tight tree ties can damage the bark of the tree and ultimately kill it</p> <p>Mature trees should be checked to ensure safety of users of the site</p>	<p>Pupils and staff can check the trees and help keep the base weed-free</p> <p>OR ground staff can undertake this maintenance</p> <p>Professional checks should be made to trees annually</p>
October to February	Rotational hedgerow and edge management – alternate the side you trim back each year. Leave hedges uncut for 2-3 years and vary the time of cutting	Cutting should not take place between March and the end of September. Leaving some hedges uncut will encourage a greater range of wildlife	Ground staff
November to March	Once a hedge is established (after 3 years) avoid herbiciding or strimming under and alongside your hedge to allow wildflowers and grass to grow up. Do not mow alongside the hedgerow between April and September	To encourage more wildflowers and therefore more pollinators and therefore other wildlife into the grounds	Ground staff
November to March	Shrub beds – coppice or cut hard back to about 2cm from the ground (check this is suitable for the species planted)	To restart growth and produce a dense shrub that will not need cutting back for 3-5 years. It allows the shrub to flower and attract pollinating insects	Ground staff





# Orchards

**Mainly pollinated by honey bees, fruit trees are relatively easy to maintain once established**

Fruit trees provide flowers that are pollinated mainly by honey bees but also other types of bees including some solitary bees. They are relatively easy for schools to maintain, especially once they are established, and provide a resource for learning as well as shade and shelter in the grounds.

Traditionally managed orchards will have meadows under them, see the grass/meadows section (pages 8-9) for their maintenance schedule.

Please note that the 'who?' column is a recommendation and may be different in each school. Decide who is best placed to undertake each job and make sure it is listed in the overall maintenance calendar.

Information on trees is from The Orchard Project

[www.theorchardproject.org.uk](http://www.theorchardproject.org.uk).



	When	Management	Why	Who
YEAR 1	After planting	Maintain a 1m weed-free zone around the base of each tree. Apply 8cm layer of hard-wood bark mulch or a mulch mat. Keep any grafts clear of the mulch	Conserves moisture whilst reducing competition from weeds	School – when trees are planted a tree guard and mulch should be added
	January	Make sure you can get your finger between the tree trunk and the tree ties. Loosen if too tight	Tight tree ties can strangle the tree trunk and cause damage	School – pupils with support from staff
	April	Let the tree come into flower (Blossom) but as soon as the petals drop off you need to thin out the tiny fruitlets	This will allow the roots to grow strong first and the branches have time to thicken to support the heavy fruit	School – pupils with support from staff
	July	You can water weekly when buds open in the spring BUT only if you can provide 15-20L of water per tree	To give each tree the best chance of strong growth and good fruits	School – pupils with support from staff

	When	Management	Why	Who
YEAR 2	September to March	Maintain a 1m weed-free zone around the base of each tree  Apply 8cm layer of hard-wood bark mulch or a mulch mat  Keep any grafts clear of the mulch	Conserves moisture whilst reducing competition from weeds	School – pupils with support from staff
	November	Prune damaged branches to just above outward-facing buds (that is where the branch will continue to grow from)	To maintain healthy and productive trees	School – pupils with support from staff
	January	Check you can get your finger between the tree trunk and the tree ties  Loosen if too tight  Check tree supports to make sure they are still firm	Tight tree ties can strangle the tree trunk and cause damage	School – pupils with support from staff
	April to June	Thin overcrowded fruitlets to allow the good/strong ones to ripen  Leave on 2-3 fruits per cluster	Fruit needs sunlight to ripen, overcrowding can mean less light on the skin and place too much weight on the branches which could snap off	School – pupils with support from staff can check fruit and remove as required
	Late August to early September	Prune cordons and espaliers to allow more light to get to the fruits	To maintain healthy and productive trees	School – pupils with support from staff

	When	Management	Why	Who
YEAR 3	September to November, depending on varieties	Gently pick fruit – it is ready to pick when the stalks detach from the tree easily without pulling and tugging	Conserves moisture whilst reducing competition from weeds	School – pupils with support from staff can pick the crop
	January	Check you can get your finger between the tree trunk and the tree ties  Loosen if too tight  Check tree supports to make sure they are still firm if support is still needed or removed if tree is now firm	Tight tree ties can strangle the tree trunk and cause damage	School – pupils with support from staff
	June	Check for pests and diseases	To maintain healthy growth	School
	April to June	Thin overcrowded fruitlets to allow the good/strong ones to ripen. Leave on 2-3 fruits per cluster	Fruit needs sunlight to ripen, so overcrowding can mean less light on the skin and place too much weight on the branches which could snap off	School – pupils with support from staff can check fruit and remove as required
	July	You can water weekly when buds open in the spring BUT only if you can provide 15-20 litres of water per tree	To give the trees the best chance of growing the best fruit	School



# Willow structures

**Fast growing willow trees are a great source of early spring nectar**

Willow provides nectar and larval food plants for a range of pollinators including many moths. The nectar is often available in early spring, and the leaves are a great food source.

Like all trees, willows offer shelter and nesting sites all year round.

There are many different species of willow. The willows most commonly used for structures are:

- *Salix triandra*
- *Salix viminalis*
- *Salix purpurea*



When	Management	Why	Who
November to March	After planting let the willow grow, keeping it weed free around the base, using a weed suppressing material or wood chip mulch  Do not trim near the structure	To give the willow structure a good start and establish itself in the ground	School – pupils supported by staff
September or October	Weaving in long stems to reinforce the structure or prune them if not needed  You can plant these cuttings elsewhere in the grounds as a new source of willow for future projects	To make sure the structure grows to its designed shape and continues to be a strong usable feature in the grounds	School or ground staff – especially for higher items that might need accessing by a ladder
September or October	Repeat the weaving and pruning every year	To make sure the structure grows to its designed shape and continues to be a strong usable feature in the grounds	School or ground staff – especially for higher items that might need accessing by a ladder
November to March	Shrub beds – coppice or cut hard back to about 2cm from the ground (check that this is suitable for the species planted)	To restart growth and produce a dense shrub that will not need cutting back for three to five years. This also allows the shrub to flower and attract pollinating insects	Ground staff



# Damp places including ponds, bogs, streams and compost

**Water or damp areas provide a habitat for many fly and beetle larvae which later become pollinators**

The water habitats also enable semi-aquatic plants to grow which are nectar sources. One of the groups to benefit from the damp leaf mould and compost are the hoverflies.



When	Management	Why	Who
September to December	<p>Survey and test water in the pond, e.g.</p> <ul style="list-style-type: none"> <li>• pond dip</li> <li>• measure water pH</li> <li>• measure temperature</li> <li>• measure depth</li> </ul> <p>Observe the pond to see if it changes (and if worried seek advice)</p> <p>This can be done with streams too</p> <p>Manage the pond and do a winter clearance</p> <p>Clear stream banks and make sure they are not clogged up</p> <p>Collect fallen leaves for mulch and compost</p> <p>Remove invasive plants from the bog garden</p>	<p>The moths that use the pond for reproduction need surface leaves so you need to look for changes in the pond including invasive plants, water level and quality changes</p> <p>Whilst water levels are at their lowest and the main breeding seasons over, to allow for a healthier more diverse pond</p> <p>To support pollinators to access water</p> <p>Create shelter and nesting habitat for some pollinators</p> <p>They can take over the habitat</p>	<p>Staff and pupils</p> <p>Parents and staff</p> <p>Grounds staff</p> <p>Staff and pupils</p>
November to February	<p>Survey and test water in the pond, e.g.</p> <ul style="list-style-type: none"> <li>• pond dip</li> <li>• measure water pH</li> <li>• measure temperature</li> <li>• measure depth</li> </ul> <p>Observe the pond to see if it changes (and if worried seek advice)</p> <p>This can be done with streams too</p> <p>Manage woody plants around the pond</p> <p>Make sure the bog garden does not become so waterlogged that the plant roots rot</p>	<p>The moths that use the pond for reproduction need surface leaves so you need to look for changes in the pond including invasive plants, water level and quality changes</p> <p>To reduce impact on nectar and nesting of pollinators</p>	<p>Staff and pupils</p> <p>Staff or contractor</p>
March to August	<p>Survey and test water in the pond, e.g.</p> <ul style="list-style-type: none"> <li>• pond dip</li> <li>• measure water pH</li> <li>• measure temperature</li> <li>• measure depth</li> </ul> <p>Observe the pond to see if it changes (and if worried seek advice)</p> <p>This can be done with streams too</p> <p>Add material to the compost pile</p> <p>Water bog gardens if it is a dry summer</p>	<p>The moths that use the pond for reproduction need surface leaves so look for changes in the pond including invasive plants, water level and quality changes</p> <p>Creates damp nesting habitats for some pollinators</p>	<p>Staff and pupils</p> <p>Staff or pupils</p>



# Man-made homes

**Insect hotels enable the observation and increased understanding of many solitary (non stinging) bees**

The best habitat is of course natural habitat but in areas where this hasn't been restored, insect hotels will be colonised.

Man-made homes can increase disease in insects, so it is important that – like bird boxes – they are refreshed and maintained.

If you are interested in keeping bees, find out more at:

- British Beekeepers Association  
[www.bbka.org.uk](http://www.bbka.org.uk)
- Scottish Beekeepers Association  
[www.scottishbeekeepers.org.uk](http://www.scottishbeekeepers.org.uk)





When	Management	Why	Who
All year	<p>Insect hotels observed – replace damaged materials as and when needed</p> <p>Consider moving your hotels to a sunnier aspect</p> <p>Bee hives can be kept</p>	<p>To increase nesting and shelter opportunities for pollinators</p> <p>Morning sunshine is important for warming the bees</p> <p>To raise awareness of pollinators</p>	School – pupils supported by staff
November to February	<p>Insect hotels need to be cleared out of uninhabited tubes and materials as you would in a nest box. Replace with fresh material</p> <p>Bamboo-style bee hotels should be</p> <ul style="list-style-type: none"> <li>at least 1 metre off the ground</li> <li>sheltered from rain</li> <li>use tubes at least 20cm long and closed off at the back</li> </ul> <p>An overhanging roof and/or back should keep off the rain. Check the roof of the bee hotel and replace if necessary</p>	<p>To reduce disease spread in pollinators</p> <p>To protect the entrances and reduce fungi growing – which bees will not then occupy</p>	School or ground staff – especially for higher items that might need accessing by a ladder
Every 2-3 years – November to February	<p>Replace materials (occupied cavities can be moved without impacting the larvae and even taken away to be studied in the classroom)</p>	Well occupied solitary bee hotels can become really attractive to parasites over a number of years, things that will eat the bee larvae!	School or ground staff – especially for higher items that might need accessing by a ladder





# Summary

**Thank you for looking after habitats for Pollinators. Here are some ideas for your work in the future.**

This is in line with the advice given by DEFRA's Bees' Needs and can be applied by schools, families, gardeners, farmers, developers, land owners and local authorities.

## Being part of a bigger network

The habitats you are looking after are all part of a network of habitats being created UK wide to create b-lines, find out more on the [www.buglife.org.uk](http://www.buglife.org.uk) website.

## Identification and recording

If you have seen anything of interest during your practical maintenance or want help with identification please do record it and contact your local biological records centre [www.brc.ac.uk](http://www.brc.ac.uk).

Keep developing the school grounds for the benefit of pollinating insects by making changes every year. This could include:

- growing more flowers, shrubs and trees
- not over-maintaining the grounds – let wildlife in
- cutting the grass less often
- not disturbing insect nests and hibernation spots
- thinking carefully about whether to use pesticides





Schools can survey their sites using the OPAL Polli:Nation survey: [www.opalexplornature.org/polli-nation](http://www.opalexplornature.org/polli-nation), to inform future changes to their school site and enable children and young people to take part in purposeful field work.

If you are a land manager or have community areas you would like to survey or manage for pollinators please visit the national pollinator monitoring and research partnership [www.ceh.ac.uk](http://www.ceh.ac.uk).

## Making further changes to the sites

There are lots of ways to improve sites for pollinators and often by doing this a wider range of wildlife will be helped too.

To find out more visit the Polli:Nation website which you can access by visiting [www.ltl.org.uk/projects/pollination](http://www.ltl.org.uk/projects/pollination).

## A partnership approach

Schools and grounds maintenance staff need to talk about what the aim of the maintenance plan is.

Check contracts and make changes to them as necessary. Be sure everyone understands what should be done and why it is happening – what the end result should be and who and what it benefits, both for pollinating insects and other wildlife but also for the pupils. And get everything agreed in writing.



Polli:Nation was a Heritage Lottery Funded project (now The National Lottery Heritage Fund).

Led by Learning through Landscapes it brought together a partnership between conservation and educational organisations to work with over 250 schools across the UK on a unique project to enable children and young people to understand the value of pollinating insects and also to be able to make a difference by improving their school grounds and local spaces for the benefit of these important pollinators.



This guide has been developed by Learning through Landscapes with help and input from the project schools and project partners Bumblebee Conservation Trust, Butterfly Conservation and also from Chris Baines, with drawings and advice from Tony Harris from Dorset County Council. It is designed and published by the Field Studies Council.

For more information on Polli:Nation please visit [www.ltl.org.uk/projects/pollination](http://www.ltl.org.uk/projects/pollination)